

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2021/0188662 A1

Kamen et al. (43) **Pub. Date:**

Jun. 24, 2021

(54) WATER VAPOR DISTILLATION APPARATUS, METHOD AND SYSTEMS

(71) Applicant: **DEKA Products Limited Partnership**.

Manchester, NH (US)

(72) Inventors: **Dean Kamen**, Bedford, NH (US); Ryan K. LaRocque, Manchester, NH

(US); Christopher C. Langenfeld, Nashua, NH (US); Andrew

Schnellinger, Merrimack, NH (US); Prashant Bhat, Bedford, NH (US); Otis L. Clapp, Epping, NH (US); Stanley B. Smith, III, Raymond, NH (US); Stephen M. Ent, Derry, NH (US)

(21) Appl. No.: 17/008,483

(22) Filed: Aug. 31, 2020

Related U.S. Application Data

- Continuation of application No. 15/468,870, filed on Mar. 24, 2017, now Pat. No. 10,759,676, which is a continuation of application No. 13/952,263, filed on Jul. 26, 2013, now Pat. No. 9,604,858, said application No. 15/468,870 is a continuation-in-part of application No. 13/982,022, filed on Jan. 9, 2014, now Pat. No. 9,610,518, filed as application No. PCT/US2012/ 046740 on Jul. 13, 2012, which is a continuation-inpart of application No. 13/184,169, filed on Jul. 15, 2011, now Pat. No. 8,505,323.
- Provisional application No. 61/676,597, filed on Jul. 27, 2012, provisional application No. 61/819,919, filed on May 6, 2013.

Publication Classification

| (51) | Int. Cl. | |
|------|-----------|-----------|
| ` ′ | C02F 1/04 | (2006.01) |
| | B01D 1/00 | (2006.01) |
| | B01D 1/28 | (2006.01) |
| | B01D 3/00 | (2006.01) |
| | B01D 3/42 | (2006.01) |
| | C02F 1/00 | (2006.01) |
| | C02F 1/16 | (2006.01) |

(52) U.S. Cl. CPC C02F 1/041 (2013.01); B01D 1/0058 (2013.01); B01D 1/2896 (2013.01); B01D 3/007 (2013.01); C02F 2209/05 (2013.01); C02F 1/008 (2013.01); C02F 1/048 (2013.01); **C02F** 1/16 (2013.01); Y02W 10/37 (2015.05); B01D 3/42 (2013.01)

(57)ABSTRACT

A fluid vapor distillation system. The system includes a control system for controlling a fluid vapor distillation apparatus including a blow down controller for controlling a blow down valve, a source flow controller for controlling a source flow valve, and a blow down level sensor in communication with a blow down controller and a source flow controller, the blow down level sensor sends signals related to the blow down level to the blow down controller and the source flow controller indicative of the blow down level, wherein the source flow controller actuates the source flow valve based at least on the blow down level sensor signals, and wherein the blow down controller actuates the blow down valve based at least on the blow down level sensor signals, whereby the blow down level and the source flow level are maintained using the blow down level sensor signals as input.



